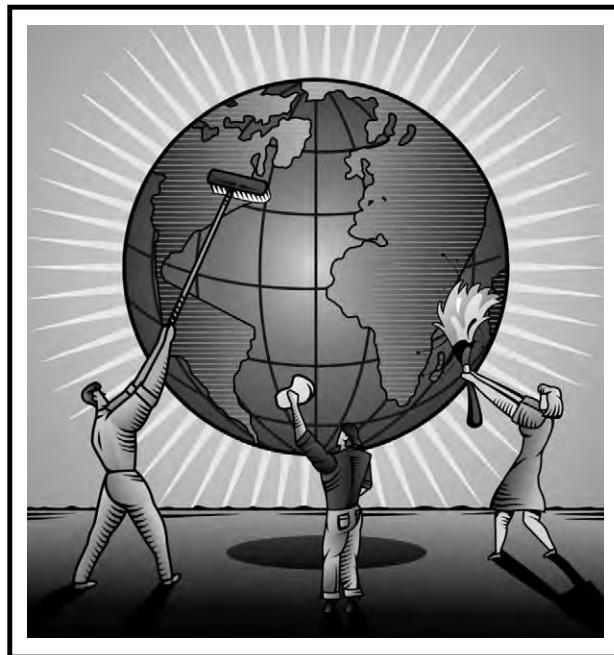


# Missouri *Green Cleaning* Guidelines and Specifications for Schools



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Missouri Department of  
Elementary and Secondary Education

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## **PURPOSE**

From infancy through adolescence, children are some of our most vulnerable citizens, and individuals with certain medical and health needs may have particular sensitivities to certain products that are being used in school districts. The purpose of the Missouri Green Cleaning Guidelines and Specifications is to facilitate a healthier environment for the students, staff and visitors of educational settings.

## **SUMMARY**

The Missouri Green Cleaning Guidelines and Specifications for Schools (the “guidelines and specifications”) set forth a series of recommended practices to improve the health and environment of educational settings.

The Missouri guidelines and specifications recommend that schools and educational settings use cleaning supplies that meet the standards of any of several eco-labeling organizations. The guidelines and specifications intentionally forego judging any of these standards against each other to allow for the greatest availability of products.

The guidelines and specifications allow for an alternative qualification method to provide adequate opportunities for small and emerging product lines.

Also included in these guidelines and specifications is a series of recommended purchasing criteria and best practice policies for green cleaning in Missouri schools.

Implementation of these practices, while not required by law, will best improve the health and environment of educational facilities. Therefore, it is strongly recommended that schools and educational settings adopt and implement the Missouri Green Cleaning Guidelines and Specifications to ensure the health and safety of all those who occupy the facilities as well as minimize the environmental impact of cleaning products and processes.

## **COMMON MISSION**

### **Shared Responsibility**

Cleanliness, health and safety are not solely the responsibility of custodians. Everyone who uses the building, including students, parents, teachers, administrators, support staff and outside contractors must play a role in maintaining a healthy environment. Schools’ experiences implementing green cleaning programs throughout the United States show that promoting stewardship and increasing institutional commitment are critical to both short- and long-term success.

### **Promoting Stewardship**

Custodians tend to take the brunt of criticism for environmental problems. But, keeping schools clean is a shared responsibility. It is important to communicate with administrators, staff, teachers, students, parents, visitors and vendors about green cleaning and educate them about their role in maintaining environmental improvements and

preventing future problems. The goal is to promote environmental stewardship across the school community, so that each stakeholder takes personal responsibility for the environment by recycling paper and plastic, conserving water, maintaining uncluttered classrooms and workspaces and handling food and potential contaminants properly.

### **Increasing Institutional Commitment**

Developing widespread and formal institutional commitment to green cleaning is another way to ensure the long-term success of your green cleaning program. Creating a Green Team, developing and implementing a green cleaning implementation plan, adopting a green cleaning policy and evaluating results are important steps for developing a long-term commitment to green cleaning in your school.

*The Common Mission is adapted from the Healthy Schools Campaign.*

## **HOW TO IMPLEMENT**

In implementing the Missouri Green Cleaning Guidelines and Specifications, all schools and educational settings are encouraged to use their current cleaning supplies until such time as the supplies on hand are exhausted.

Schools and educational settings are encouraged to adopt and implement these Green Cleaning Guidelines and Specifications in a timely manner. These guidelines and specifications set forth recommendations regarding green cleaning products and processes.

In procuring green cleaning products as described in these guidelines and specifications, schools and educational settings may use any allowable procurement method they have at their disposal. Procurement methods may include purchasing directly from distributors or manufacturers, through an invitation for bid process, through cooperatives, or through the State of Missouri Cooperative Procurement Program managed by the Office of Administration, Division of Purchasing and Materials Management.

In order to make purchasing green products as easy as possible, the Department of Elementary and Secondary Education (DESE) provides links in the Appendix (page 26) to cleaning products that are certified or recognized as “environmentally sensitive” by organizations such as Green Seal, the U.S. EPA Design for the Environment Formulator Program, and Environmental Choice. Please be aware that these organizations do not provide certification or recognition for all cleaning product categories. For those product categories not addressed by such third-party eco-label organizations, it is important that you follow the recommendations set forth in these guidelines and specifications in making your purchasing decisions.

In addition, the implementation of green cleaning programs relies on more than simply substituting environmentally-sensitive products for traditional cleaners. New or different cleaning processes are likely to also be involved. These processes should be reviewed and employees provided with appropriate training prior to implementation. These guidelines and specifications provide instruction and guidance in this regard. In addition, schools and educational settings may also seek guidance in this area from product distributors and/or manufacturers.

## **BACKGROUND**

### **Legislative History**

On July 10, 2008, Missouri Governor Matt Blunt signed into law an act that requires the Missouri Department of Elementary and Secondary Education (DESE) to establish green cleaning guidelines and specifications for schools. Missouri is the fourth state in the nation to address the use of environmentally-sensitive cleaning products in schools. The Missouri green cleaning for schools legislation was preceded by New York State, Illinois and Maine. While the New York and Illinois programs are mandatory, Maine and Missouri allow schools to voluntarily implement green cleaning programs.

### **Guidelines and Specifications Development Process**

Per Section 161.365, RSMo, DESE is charged with the primary responsibility of establishing and amending on an annual basis guidelines and specifications for green cleaning programs in educational settings. DESE is required to execute this responsibility in consultation with the Department of Health and Senior Services and a panel of interested stakeholders, including cleaning product industry representatives, non-governmental organizations, and others.

By law, the guidelines and specifications are required to address environmentally-sensitive cleaning and maintenance products, paper product purchases, and equipment purchases for cleaning programs. DESE is required to provide multiple avenues by which cleaning products may be determined to be environmentally sensitive under the guidelines and specifications. Missouri law also states that the guidelines and specifications may include implementation practices, including inspection.

The Missouri guidelines and specifications were developed consistent with the above-referenced requirements and recommendations. Representatives from DESE and the aforementioned participating agencies and organizations met on November 10, 2008 and December 17, 2008 at the offices of DESE to determine the content and structure of the guidelines and specifications. The guidelines and specifications were taken to the State Board of Education for their approval on January 15, 2009.

DESE wishes to acknowledge the Illinois Green Governments Coordinating Council for the use of their guidelines and specifications.

## **GUIDELINES AND SPECIFICATIONS FOR GREEN CLEANING**

### **Section I – Applicability of Guidelines and Specifications**

DESE has established these guidelines and specifications for green cleaning policies in schools and educational settings in Missouri. While the implementation of these guidelines and specifications is voluntary on the part of schools, DESE strongly recommends that they be adopted and implemented by schools and educational settings across Missouri. The green cleaning guidelines and specifications will ensure that school facilities and educational settings are cleaned for the health of the students, teachers, custodians and other occupants, while minimizing any environmental impact of the cleaning products and processes referenced herein.

### **Section II – Definitions**

#### *Bathroom Cleaners*

Products used to clean hard surfaces in a bathroom, such as counters, walls, floors, fixtures, tubs or tile. This category does not include disinfectants, sanitizers, or antimicrobial products, as regulated by the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 *et seq.*)

#### *Carpet Cleaners*

Products used to eliminate dirt and stains on rugs and carpeting.

#### *Disinfectants*

Products used on hard inanimate surfaces and objects to destroy or irreversibly inactivate infectious fungi and bacteria, but not necessarily their spores.

#### *Environmentally-Sensitive Cleaning Products*

Cleaning and maintenance products that minimize adverse impacts on human health and the environment, while cleaning effectively.

#### *General Purpose and Hard Floor Surface Cleaners*

Products used for routine cleaning of hard surfaces, including impervious flooring such as concrete or tile. This category does not include products intended primarily to strip, polish or wax floors, and it does not include cleaners intended primarily for cleaning toilet bowls, dishes, laundry, upholstery or wood; disinfectants, sanitizers, or antimicrobial products, as regulated by the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 *et seq.*)

#### *Glass, Window and Mirror Cleaners*

Products used to clean glass, windows, mirrors or metallic or polished surfaces.

#### *Hand Cleaners and Hand Soaps*

Products used for routine, non-specialized hand cleaning.

#### *Paper Products*

Paper towels or other paper used for cleaning and do not include toilet paper, facial tissue or paper towels used for drying hands.

#### *Sanitizers*

Products used to reduce, but not necessarily eliminate, microorganisms from the inanimate environment to levels considered safe as determined by public health codes or regulations.

### **Section III – General Guidance on Cleaning Supply Purchases**

DESE evaluated existing documentation for advising schools on purchasing criteria for supplies outside of the categories covered by Section V. DESE found that the U.S. EPA provides the most comprehensive set of general principles and attributes for environmentally-preferable purchasing.

Accordingly, DESE encourages schools to follow the five principles listed below when purchasing supplies outside the scope of the categories listed in Section V, Cleaning Supply Purchases with Prequalification.<sup>1</sup>

#### *Guiding Principles*

- a. Include environmental factors as well as traditional considerations of price and performance as part of the normal purchasing process.
- b. Emphasize pollution prevention early in the purchasing process.
- c. Examine multiple environmental attributes throughout a product or service's life cycle.
- d. Compare relative environmental impacts when selecting products and services.
- e. Collect and base purchasing decisions on accurate and meaningful information about environmental performance.

Keeping these principles in mind, schools should also incorporate as many of the following attributes as possible into their decisions regarding cleaning supply purchases and their specifications for cleaning service contracts.<sup>2</sup>

#### *Preferable Product Attributes*

- a. Minimal presence of or exposure to potentially harmful chemicals, such as:
  1. Corrosive or strongly irritating substances.
  2. Substances classified as known or likely human carcinogens or reproductive toxicants by authorities such as the National Toxicology Program, the U.S. EPA, the International Agency for Research on Cancer, or State of California-Proposition 65.
  3. Ozone-depleting compounds as listed in Clean Air Act regulations.<sup>3</sup>

<sup>1</sup> U.S. EPA, Five Guiding Principles in Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers. Available online at [www.epa.gov/epp/pubs/cleaning.htm](http://www.epa.gov/epp/pubs/cleaning.htm).

<sup>2</sup> U.S. EPA, Product Content and Use in Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers. Available online at [www.epa.gov/epp/pubs/cleaning.htm](http://www.epa.gov/epp/pubs/cleaning.htm).

<sup>3</sup> For more information, visit [www.epa.gov/ozone/science/ods/classone.html](http://www.epa.gov/ozone/science/ods/classone.html) and <http://www.epa.gov/ozone/science/ods/classtwo.html>.

- 4. Regulated hazardous materials (e.g., products classified as hazardous waste; products that trigger OSHA hazard communication requirements).
- b. No added fragrances or dyes.
- c. Low volatile organic compound (VOC) content.
- d. Biodegradable by standard methods and definitions, e.g., ready biodegradability as defined by the Organization for Economic Cooperation and Development (OECD). “Ready biodegradability” is a definition meant to ensure that a material degrades relatively quickly in an aquatic aerobic environment.
- e. Low toxicity in aquatic species such as fish or aquatic invertebrates, e.g., LC50 or EC50 > 10 mg/L (chronic) reported on MSDS or other product literature.
- f. Low flammability, e.g., flash point > 200 degrees F.
- g. Presence of ingredients derived from renewable resources, such as bio-based materials.
- h. Designed for use in cold water in order to conserve energy.

*Preferable Product Packaging and Shipping*

- a. Concentrated formulas with appropriate handling safeguards.
- b. Efficient packaging (e.g., light weight, reduced volume).
- c. Recyclable packaging.
- d. Recycled-content packaging.
- e. Refillable bottles.
- f. Pump sprays rather than aerosols.
- g. Packaging and dilution systems designed to reduce exposure to the product.
- h. Products shipped in bulk.
- i. Clear labeling and information on use and disposal.

*Preferable Product Use*

- a. Limit use of disinfectants to areas where people are likely to come into contact with contaminated surfaces (e.g., bathroom fixtures, doorknobs, other high-touch surfaces) and circumstances prescribed by public health codes (see Relationship to Other Laws). Many general purpose cleaning tasks (e.g., routine cleaning of walls, floors and other surfaces with minimal hand contact) do not typically require the use of disinfectants.
- b. Conduct training on proper use of products.
- c. Chemicals should be dispensed using a metered dilution system.
- d. Use in accordance with the label instructions.

#### **Section IV – General Best Practices for Implementation**

Green cleaning products should be handled with care. All manufacturers' instructions must be followed, as well as the use of proper protective equipment. These products should be stored in a location that is controlled and secured at all times.

Effective green cleaning policies require *procedural* elements in addition to the purchasing of environmentally-sensitive supplies and equipment. In researching procedures for school-wide green cleaning policies, DESE identified documentation from Pennsylvania as providing a set of easy-to-follow, common sense practices for schools.

DESE advises schools to incorporate as many of the following practices as possible into their own school-wide green cleaning policies.<sup>4</sup>

*Entryways*

- a. Clean entryways beginning outside the building.
- b. Use walk-off matting outside and inside entry. Vacuum, sweep and clean these mats frequently, especially during inclement weather.
- c. Make sure mopping solutions are kept clean using only the correct amount of cleaning chemical. Do not overuse concentrated cleaning chemicals. Remake as necessary and dispose of spent solution appropriately.
- d. Use appropriate vacuums. Dispose of captured material or empty bags before half full. Dispose of properly.

*Use of Cleaning Supplies by Non-Custodial Staff*

- a. Provide school staff with small quantities of qualified general purpose cleaners for minor cleaning needs. When providing the products, include instruction on proper use.
- b. Ensure all products used by school staff are properly labeled and stored.
- c. Instruct staff not to use cleaning products other than those supplied by the school district.
- d. For more major cleaning needs, staff should request assistance from a trained custodial supervisor.
- e. Staff should be discouraged from bringing in and using products from home.
- f. The use of scented candles, potpourri, air fresheners, etc. is discouraged.

*Vulnerable Populations*

- a. Respond to those building occupants with individual medical needs and health sensitivities such as those with illnesses, allergies, compromised immune systems or women who are pregnant or nursing babies and who request accommodation pursuant to law.
- b. Change products and cleaning schedules as necessary to reasonably accommodate individual needs.
- c. Address ventilation requirements to help mitigate the problems. Proper ventilation is essential for good indoor environmental quality. In particular, adequate outside air intake serves to dissipate potentially irritating chemicals and fine particles, including those from cleaning products and procedures.
- d. Carefully read ingredient labels on all cleaning products. Avoid using products that contain major allergens such as peanuts, tree nuts or wheat that may be found in cleaning supplies.
- e. Schedule daily cleaning activities in an effort to avoid exposure of vulnerable populations to the cleaning process.
- f. Pre-notify building occupants of non-routine cleaning and maintenance so they will be aware.

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<sup>4</sup> State of Pennsylvania, Cleaning Procedures in The Pennsylvania Green Building Operations and Maintenance Manual, pp. 67-81. Available online at [www.dgs.state.pa.us/dgs/lib/dgs/green\\_bldg/greenbuildingbook.pdf](http://www.dgs.state.pa.us/dgs/lib/dgs/green_bldg/greenbuildingbook.pdf).

- g. The Architectural and Transportation Barriers Compliance Board (Access Board) guidelines have been developed for the vulnerable population and may be a useful resource (See Appendix B).

## **Section V – Cleaning Supply Purchases with Prequalification**

- a. The institutional (school) cleaning market is composed of several categories of cleaning supplies. After review and evaluation, DESE has determined that a sufficient selection of cost-competitive, effective and environmentally-sensitive cleaning supplies are available in each of the following categories:
  1. Bathroom Cleaners
  2. Carpet Cleaners
  3. General Purpose and Hard Floor Surface Cleaners
  4. Glass, Window and Mirror Cleaners
  5. Hand Cleaners and Hand Soaps
  6. Paper Products
- b. Moreover, for the aforementioned cleaning supply categories, DESE has closely examined the various relevant third-party certification and recognition programs, and has determined that there are ample supplies of such products certified or otherwise recognized as environmentally sensitive for purposes of these guidelines and specifications. DESE recommends that products in the aforementioned categories be considered “environmentally sensitive” and suitable for purchase by schools and educational settings if the products are:
  1. Certified by Green Seal, 1001 Connecticut Ave., NW, Suite 827, Washington DC, 20036-5525, <http://www.greenseal.org/>.
  2. Certified by Environmental Choice EcoLogo Program, 107 Sparks St., 2<sup>nd</sup> Floor, Ottawa, Ontario, Canada K1A 0H3, <http://www.ecologo.org/>.
  3. For chemicals: Recognized by the U.S. Environmental Protection Agency Design for the Environment (DfE) Formulator Program, Office of Pollution Prevention and Toxics, USEPA, 1200 Pennsylvania Ave., NW, Mail Code 7406-M, Washington DC, 20460, <http://www.epa.gov/dfe/contact.htm>.
  4. For paper products: In compliance with the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines for Commercial and Industrial Sanitary Tissue (40 CFR 247, 2007, no later amendments or editions),  
<http://www.epa.gov/osw/conserve/tools/cpg/products/tissue.htm>.
- c. Schools should use the supplies as intended by the manufacturer and applicable certification body. Schools should follow all manufacturer/certifier guidelines, as well as the recommendations set forth in these guidelines and specifications.
- d. Use of a concentrated product both conserves natural resources and reduces waste. When using concentrated products, it is advisable that dilution control systems or other similar devices be used in diluting the product to ensure that employee exposure is minimized.

## **Section VI – Cleaning Supply Purchases with Alternative Qualification**

- a. Although DESE has determined that there is an adequate supply of prequalified cleaning supplies at competitive prices in the product categories listed above, schools may procure and use cleaning supplies in the listed categories that are qualified through an alternative method. More specifically, schools may procure and use cleaning supplies qualified as environmentally sensitive through alternative means, provided the products meet the criteria set forth in this Section.
- b. Schools may procure and use non-prequalified cleaning supplies if the manufacturer or distributor of those supplies provides alternative qualification of environmental sensitivity. Schools will need independent documentation verifying that the products meet the criteria of at least one of the Green Seal standards (GS-37 or GS-41 for chemicals; GS-9 for paper) or EcoLogo standards (CCD [Certification Criteria Document]-104, CCD-146 or CCD-148 for chemicals; CCD-86 for paper).
- c. The verification must come in the form of testing data provided by one or more independent third-party laboratories. Any laboratories that maintain accreditation meeting the standards of ISO/IEC 17025 (International Organization for Standardization/International Electrotechnical Commission; 1, ch. de voie-Creuse, Case postale 56 CH-1211, Geneva 20, Switzerland, <http://www.iso.org/iso/home.htm>; 2005, no later amendments or editions included) may conduct the required testing.

## **Section VII – Recommendations for Additional Product Categories**

For the product categories addressed above in Section V, DESE has determined that sufficient products are certified or recognized as environmentally sensitive pursuant to existing third-party eco-label programs. DESE has determined that third-party certification or recognition and/or verification that the product meets such third-party criteria is an appropriate method of qualifying such products as environmentally sensitive.

On the other hand, there are numerous cleaning product categories that are either not addressed by third-party eco-label programs, or if they are so addressed, there is not an adequate number of products certified or otherwise recognized by such a program to justify reliance on such a program as a means of defining a product as environmentally sensitive.

Nonetheless, these other cleaning product categories play an important role in the cleaning and maintenance of schools and other educational settings. Therefore, DESE has determined it is appropriate and necessary to provide guidelines and specifications to help schools select and purchase environmentally-sensitive cleaning products in categories other than those addressed in Section V.

The guidelines and specifications below provide general guidance as well as product-specific recommendations that schools can use in selecting a wide range of environmentally-sensitive cleaning products.

DESE recognizes that schools will have needs for specific categories of cleaning supplies outside those categories covered in Section V of the guidelines and specifications. In

researching the environmental sensitivity of other supply categories, DESE identified guidelines from the State of Pennsylvania as providing a clear and succinct set of recommended criteria for purchasing specific categories of cleaning supplies.

Drawing primarily from these guidelines, DESE strongly encourages schools to consider the following attributes as they apply to the unique supply categories below.<sup>5</sup>

#### *Air Fresheners*

Some air fresheners contain ingredients that can cause respiratory irritation and inhibit lung capacity. The smell of clean is no smell at all. If odors persist despite regular cleaning, then adjustments in ventilation should take priority over the use of air fresheners.

#### *Bathroom and Facial Tissues*

For bathroom and facial tissues, select products that are certified by Green Seal (GS-1), EcoLogo (CCD-82 or 83), or meet the standards of the U.S. EPA Comprehensive Procurement Guidelines for Commercial and Industrial Sanitary Tissue (Appendix B).

#### *Chrome Cleaners/Polishes*

Chrome cleaner/polish frequently uses petroleum distillates, which are poisonous and derived from a non-renewable resource. The following are some of the specific issues to compare for this product category:

- a. VOC: Prefer those that have no or low VOC versus alternatives with higher levels.
- b. Bio-Based/Renewable Resources: Prefer products that use oils derived from renewable resources as compared to oils from non-renewable resources.

#### *Degreasers*

Degreasers are typically heavy duty cleaners that include solvents for removing oil-based soils. Traditional solvents are typically derived from non-renewable resources (e.g., petroleum), can be flammable, have a high degree of VOCs that can cause respiratory irritation and contribute to environmental pollution, and some have severe health impacts. The following are some of the specific issues to compare for this product category:

- a. pH: Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14).
- b. Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- c. Prefer those with no added dyes or fragrances.
- d. VOC: Prefer those that have no or low VOC versus alternatives with higher levels.
- e. Bio-Based/Renewable: Prefer products that use oils derived from renewable resources as compared to oils from non-renewable resources.
- f. Flashpoint: Prefer products that have a high flashpoint compared to those with a low flashpoint.

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<sup>5</sup> State of Pennsylvania, Cleaning Product Selection in The Pennsylvania Green Building Operations and Maintenance Manual, pp. 83-90. Available online at [www.dgs.state.pa.us/dgs/lib/dgs/green\\_bldg/greenbuildingbook.pdf](http://www.dgs.state.pa.us/dgs/lib/dgs/green_bldg/greenbuildingbook.pdf).

### *Disinfectants and Sanitizers*

Disinfectants and sanitizers are similar to all-purpose cleaners with supplementary ingredients added to kill bacteria and other unwanted organisms. Because disinfectants kill organisms, they are regulated as “pesticides” under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The U.S. EPA interprets FIFRA as prohibiting manufacturers from making claims that disinfectants and sanitizers are “green” or “environmentally sensitive.” Nonetheless, disinfectants and sanitizers play an important role in all green cleaning policies. When selected with care, and used with the proper procedures and methods and in accordance with the label instructions, they are effective tools in preventing the spread of infections and illnesses. The following are some of the specific issues to compare for this product category:

- a. Toxicity: Use the least toxic disinfectants and sanitizers (i.e., avoid those products that display the signal word “DANGER”).
- b. pH: Prefer those with a more neutral pH (closer to 7) versus those with extreme pH (closer to 1 or 14).
- c. Prefer those with no added dyes and fragrances.
- d. Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade.

### *Floor Finishes*

Floor finishes must be durable and appropriate for the prescribed maintenance method, but they typically contain heavy metals. Importantly, floor finishes must be compatible with the stripping solution. The following are some of the specific issues to compare for this product category:

- a. Durability: Prefer finishes that are more durable (require less maintenance such as buffing, restoring and recoating) than less durable finishes that require more frequent maintenance. Ideally, select a product that lasts three years before requiring stripping.
- b. Preferred Products: Prefer a Green Seal or EcoLogo certified product, or a product recognized by the U.S. EPA Design for the Environment program, if it meets the durability characteristic of lasting for at least three years.
- c. Heavy Metals: Prefer non-heavy metal cross-linked polymers versus those containing heavy metals.

### *Floor Strippers*

Floor strippers typically have extreme pH, solvents and ammoniated compounds necessary to remove metal cross-linked floor finishes. Floor strippers must be compatible with the floor finish. The following are some of the specific issues to compare for this product category:

- a. Preferred Products: Prefer a Green Seal or EcoLogo certified product, or a product recognized by the U.S. EPA Design for the Environment program.
- b. pH: Prefer those with a pH closer to neutral (in the range of 10 to 12) as compared to those with extreme pH (closer to 14).
- c. VOC: Prefer those that have no or low VOC versus alternatives with higher levels.
- d. Bio-Based/Renewable Resources: Prefer those that contain naturally-derived solvents versus those containing solvents derived from non-renewable resources.

### *Furniture Polish*

Furniture polishes frequently use petroleum distillates, which are poisonous and derived from a non-renewable resource. The following are some of the specific issues to compare for this product category:

- a. VOC: Prefer those that have no or low VOC versus alternatives with higher levels.
- b. Bio-Based/Renewable Resources: Prefer products that use oils derived from renewable resources as compared to oils from non-renewable resources.

### *Graffiti Remover*

Graffiti removers are typically heavy duty cleaners that include solvents for removing oil-based paints. Traditional solvents are typically derived from non-renewable resources (e.g., petroleum) and can be flammable. The following are some of the specific issues to compare for this product category:

- a. VOCs: Prefer those that have no or low VOC versus alternatives with higher levels.  
Consider detergent-based products compared to those containing solvents.
- b. Flashpoint: Prefer products that have a high flashpoint compared to those with a low flashpoint.
- c. pH: Prefer those with a neutral pH (closer to 7) versus those with extreme pH (closer to 1 or 14).
- d. Bio-Based/Renewable Resources: Prefer products derived from renewable resources as compared to non-renewable resources.

### *Gum Remover*

Dry ice and carbon dioxide are preferable products for gum removal. Degreasers can be used in some situations (see recommendations on Degreasers). The following are some of the specific issues to compare for this product category:

- a. VOCs: Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent-based products compared to those containing solvents.
- b. Flashpoint: Prefer products that have a high flashpoint versus those with a low flashpoint.
- c. pH: Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14).

### *Lime and Scale Remover*

Lime and scale removers are acids because of the need to remove mineral deposits from sinks, bowls and urinals. Choose those products with a more neutral pH versus those with extreme pH (closer to 1). Environmentally preferable lime and scale removers may fall closer to an acidity of pH 4 as compared to traditional products that may have a pH below 1. Proper safety and handling procedures should be used for any strong acids, particularly corrosive acids, which U.S. EPA defines as pH less than 2.

### *Microfiber*

Microfiber is a synthetic material made from extremely fine threads of polyester or nylon. Due to its fine weave, microfiber naturally traps dust and dirt particles, making it an ideal material for cleaning. Microfiber cloths and mops can greatly reduce or even eliminate the

need for added chemicals when dusting or cleaning surfaces. The following are some of the specific issues to compare for this product category:

- a. "Soft weave" microfiber is best for general dry surface cleaning.
- b. "Hard weave" microfiber is best for cleaning glass and other hard surfaces that do not scratch.
- c. Some microfiber weaves contain a cotton blend, which makes them suitable for damp or wet cleaning areas such as restrooms.

#### *Plastic Bags*

Plastic bags are frequently used as trashcan liners. Careful selection of plastic bags can minimize resource use and waste. The following are some of the specific issues to compare for this product category:

- a. Recycled Content: Prefer a minimum of 10% post-consumer content.
- b. Bio-based Content: Prefer those manufactured from plant polymers such as corn.
- c. Biodegradability: Prefer those that are readily biodegradable.
- d. Prefer liners with no scent or fragrance.

#### *Solvent Spot Removers*

Solvent spot removers are sometimes necessary for spot removal, particularly on carpets. If possible, use detergent-based spotters that reduce to powders (followed with extraction, vacuuming or other method to remove/absorb the detergent). The following are some of the specific issues to compare for this product category:

- a. pH: Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14).
- b. Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- c. Prefer those with no added dyes and fragrances.
- d. VOCs: Prefer products that have no or low VOC versus those with higher VOC content.
- e. Flashpoint: Prefer products that have a high flashpoint versus those with a low flashpoint.

#### *Urinal Deodorizers*

Urinal deodorizers are traditionally blocks placed in urinals to reduce odors. Deodorizers with added fragrance should be eliminated altogether because some urinal deodorizers can inhibit lung health. Specifically, studies have shown that the ingredient 1,4-Dichlorobenzene (PDCB) can be toxic to humans. More frequent cleaning and proper ventilation can eliminate the need for urinal deodorizers. While the use of urinal deodorizers is discouraged, if used, preference should be given to those that are readily biodegradable.

#### *Wood Floor Finishes*

Wood and stone floor coatings have traditionally been solvent-based products. While extremely durable to protect flooring materials that are very expensive to replace, these coatings can be quite hazardous during the drying and curing period. The following are some of the specific issues to compare for this product category:

- a. Durability: Prefer durable finishes that require less maintenance (e.g., recoating) than less durable finishes that require more frequent recoating.
- b. VOCs: Prefer products that have no or low VOC versus those with higher VOC content.
- c. Flashpoint: Prefer products that have a high flashpoint versus those with a low flashpoint.

## **Section VIII – Cleaning Equipment Purchases**

Effective green cleaning policies include the use of environmentally preferable powered cleaning equipment in addition to the use of environmentally-sensitive cleaning supplies. DESE recommends that schools purchase new cleaning equipment with the features listed below when current equipment reaches the end of its functioning lifetime.

It is recommended that all powered cleaning equipment purchased for use in Missouri schools and educational settings possess the following features:

- a. Safeguards such as rollers, bumpers or other machine design elements that reduce impact damage to the facility (Example: radius edge rotomold tanks or shrouds);
- b. Designed to minimize vibration, noise and user fatigue in accordance with ISO 5349-1 for arm vibrations and ISO 2631-1 for vibration to which the whole body is subjected and for sound pressure at operator's ear, ISO 11201;
- c. Equipped with environmentally preferable sealed batteries such as Gel-cell, AGM or Lithium-Ion if battery powered; and
- d. Operate with a sound level of less than 70 db unless otherwise noted below.

In addition to the environmentally preferable features listed above, the following is recommended for the specific cleaning equipment listed below:

### *Automated Floor Scrubbers*

Powered floor scrubbers should be equipped with solution flow control mechanisms such as variable speed pumps, proportional valves or solenoids. The use of cleaning fluids should be optimized through chemical metering, preferably using an on-board device or alternatively using an external device. In the alternative, preference may be given to automated floor scrubbers that use only tap water with no added cleaning products.

### *Carpet Cleaning Equipment*

Carpet cleaning equipment used for restorative and or deep cleaning should be certified by the Carpet and Rug Institute's Seal of Approval program for deep cleaning extractors.

### *Equipment Maintenance*

To optimize the use of environmentally preferable powered cleaning equipment, it is recommended that such equipment be properly maintained over its lifetime. In this regard, it is recommended that schools and educational settings maintain a log for all powered cleaning equipment to document:

- a. Date of equipment purchase;
- b. All repair and maintenance activities; and
- c. Vendor specification sheets for each type of equipment in use.

#### *Floor Polishing and Buffing Machines*

- a. Equipment that is battery or cord electric powered and used for polishing, burnishing or buffing should be equipped with vacuums, guards and/or other devices for capturing fine particulates.
- b. Propane powered floor polishing and buffing machines should use high efficiency, low-emissions engines with catalytic converters and mufflers that meet the California Air Resources Board (CARB) or the Environmental Protection Agency (EPA) standards.
- c. Propane powered floor polishing and buffing machines should operate with a sound level less than 90 db in accordance with ISO 11201.

#### *Vacuum Cleaners*

Vacuum cleaners should be certified by the Carpet and Rug Institute's Green Label Program.

### **Section IX – Specific Best Practices for Implementation**

#### *Disposal of Material*

##### *Recycling*

- a. Ensure that the building collection meets with the guidelines from the local recycling hauler and recycling facility.
- b. Ensure that occupants understand what can be recycled and how it needs to be separated.
- c. Food containers, such as soda cans, should be rinsed clean by occupants before placing in recycling containers so as to not attract pests.

##### *Trash*

- a. Ensure that trash especially that which contains food waste, is removed frequently and is not left in buildings overnight.
- b. Dispose of properly and ensure that trash does not attract pests or birds, nor create litter.
- c. Make sure that trash and recyclables are being separated properly.
- d. Choose trash container liners (plastic bags) that are the correct size for the container. Avoid double bagging by choosing the appropriate thickness plastic for the anticipated weight of the container's contents. Replace liners only when soiled.
- e. Store trash away from school building.
- f. Clean trash cans daily.
- g. Prefer liners with no scent or fragrance.

#### *Focus Areas*

##### *Food Areas (e.g., Cafeterias, Break Rooms, Teachers' Lounges, Coach's Office, etc.)*

- a. As necessary, clean and sanitize floors, tables and other contact surfaces (see Relationship to Other Laws).
- b. Separate recyclables from trash, and make sure recyclable areas are kept clean to avoid attracting pests.
- c. Make sure that occupants understand how to properly separate trash and recyclables and proper disposal of each.

- d. Make sure that waste and recycling containers are covered and emptied at least daily.
- e. Any food stored in classrooms should be stored in airtight containers.
- f. For sanitizers, see Disinfecting and Sanitizing (below).

#### *Restrooms*

- a. Make sure sanitizing and disinfecting solutions are prepared and used properly and remix as required.
- b. Frequently clean surfaces that hands touch to eliminate the spread of germs (e.g., door knobs, light switches, handles, etc.).
- c. Frequently eliminate moisture.
- d. Keep floors dry to eliminate slip falls and the build-up of bacteria and mold.
- e. Paper hand towel dispensers should be touch-free, which reduces the potential for cross-contamination of bacteria and other potentially harmful pathogens.
- f. Use the appropriate personal protective equipment including gloves.
- g. Install touch-free fixtures.

#### ***General Cleaning***

##### *Disinfecting and Sanitizing*

- a. Apply disinfectants and sanitizers judiciously to target areas or surfaces where pathogens can collect and breed, such as high touch surfaces (e.g., bathroom fixtures, doorknobs, shared telephones and computer keyboards, nursing offices, shared athletic equipment, food service areas and restroom surfaces). In addition, appropriate disinfectants should be used as prescribed by public health codes (see Relationship to Other Laws).
- b. Select the appropriate product for the necessary application and area. Choose the product that meets job requirements with the smallest impact on health and environment.
- c. Use chemical disinfectants according to label instructions. Following the instructions on the label will ensure effectiveness. Take care to dilute as instructed and allow proper dwell time. Most disinfectants require five to ten minutes of contact time to kill the targeted organism.
- d. Disinfectants require the removal of soils from surfaces before they can be effective and should not be used as a substitute for a thorough cleaning. Clean surfaces prior to disinfecting unless using a cleaner/disinfectant capable of performing both functions.

##### *Dusting and Dust Mopping*

- a. Preferably use microfiber dust mops. Ensure that dust mops are properly treated to capture dust. Use wide-area vacuums fitted with appropriate bags/filters as often as possible.
- b. Use microfiber dusting cloths, lint-free dusting cloths or a vacuum instead of feather dusters.

### *Measuring/Diluting Concentrated Cleaning Products*

- a. Use appropriate protective equipment when mixing concentrated cleaning products.
- b. Follow manufacturer's dilution directions. Do not under- or over-dilute concentrated cleaning products.
- c. Make sure that spray bottles (secondary containers) have appropriate labels.
- d. Never mix different cleaning products together.
- e. Review as necessary the relevant Material Safety Data Sheets (MSDS) information.

### **General Floor Maintenance**

#### *Carpet Care*

- a. Ensure that vacuums are in good working order using appropriate bags and/or filters.
- b. Vacuum bags should be emptied or replaced when half full. Dispose of properly.
- c. Clean up spills while they are still fresh.
- d. Minimize the amount of moisture used during cleaning.

#### *Extraction Cleaning or Dry Cleaning*

- a. Minimize the amount of cleaning chemicals. Excess chemicals result in rapid resoiling.
- b. Use appropriate functioning equipment that will maximize the amount of water being extracted from the carpet to minimize moisture and potential for mold and bacterial growth.
- c. After extraction of carpet areas that were flooded, spray-treat the area with a disinfectant solution to prevent mold and bacterial growth.
- d. Increase ventilation. Open windows if weather allows. Use fans to dry carpets quickly. Proper ventilation is essential for good indoor environmental quality. In particular, adequate outside air intake serves to dissipate potentially irritating chemicals and fine particles.
- e. Carpets should be completely dry within 24 hours.
- f. Dispose of cleaning solutions properly.

#### *Floor Care*

- a. Select appropriate heavy metal-free floor finishes that are extremely durable to minimize the need for stripping and recoating.
- b. Build a solid base consistent with manufacturer's minimum recommended standards for durability (ideally lasting at least three years).
- c. Develop a system to maintain floors on a daily basis using walk-off mats, dust mopping or vacuuming.
- d. Develop an interim restoration program to maintain adequate levels of floor finish and appearances.
- e. Where appropriate, use an anti-foam product in auto-scrubber discharge tanks to avoid falsely triggering the operator signal for a full discharge tank.

#### *Floor Stripping*

- a. Whenever feasible, schedule procedure when no occupants are in the building; otherwise notify occupants beforehand if a strip-out is scheduled.

- b. Select the least toxic products available. Mix and use products according to the manufacturer's directions.
- c. Use the appropriate personal protective equipment. Gloves, goggles and non-slip footwear are imperative. Aprons and respirators may be necessary depending on products selected.
- d. Ventilate both during and after stripping. Proper ventilation is essential for good indoor environmental quality. In particular, adequate outside air intake serves to dissipate potentially irritating chemicals and fine particles.

*Restoration, Buffing and Burnishing*

- a. Make sure that adequate floor finish exists. Determine if it is time for a scrub and recoat.
- b. Select the appropriate restoration product (if recommended by the vendor). Water-based or low VOC products are recommended.
- c. Apply in a stream or coarse spray, or by mop, to minimize amount that gets in the air. Do not over-apply.
- d. Use burnishing equipment that is equipped with vacuums, guards or other devices for capturing fine particulates.

***Hand Care Practices***

*Hand Drying*

- a. Choose touch-free towel dispensers with long rolls of paper or high-efficiency air dryers.
- b. Choose towel dispensers with features that discourage waste.

*Hand Washing*

- a. Hand washing is an important practice for staying healthy and reducing the spread of germs. To reduce the incidence of illness and infections, encourage proper hand washing (plain soap, warm water and friction for 20 seconds) for all school building occupants.
- b. Antibacterial soaps are no more effective than plain soaps at preventing infectious symptoms in the community setting.
- c. If facilities for hand washing are not available, consider providing alcohol-based hand sanitizers with careful supervision to ensure appropriate and safe use. These products do not clean the hands; rather they sanitize the skin surface as long as it is not covered with contaminants. Alcohol-based hand sanitizers are not a substitute for proper hand washing when it is available.

***Additional Best Practices***

*Indoor Plants*

- a. Educate occupants on appropriate selection and care guidelines for non-flowering indoor plants.
- b. Ensure that plants are not in direct contact with carpets and unit ventilators.

*Spills*

- a. Clean spills while still fresh.
- b. Use the proper cleaning solutions, and use only what is necessary.
- c. Dispose of properly.
- d. Ensure that occupants know whom to contact in case of spills.

## **RELATIONSHIP TO OTHER LAWS/RULES**

The Missouri Green Cleaning Guidelines and Specifications for Schools Act does not waive the responsibilities of schools under any other law, rule or regulation. Schools should comply with these guidelines and specifications to the extent they pose no conflict with other laws, rules or regulations.

Schools are required to follow specific procedures for the cleaning of certain specialized areas in their facilities. Schools should consult their procedures/policies for cleaning and maintaining areas used for food preparation, day care, health care, and for cleaning surfaces contaminated by a blood spill or other potentially infectious material.

Public school districts purchasing products or services pursuant to the recommendations of these guidelines and specifications should refer to their written bidding and purchasing policies.

## **DISCLAIMERS**

The inclusion by DESE of any product or service in these guidelines and specifications or on any list should not be construed as an endorsement, guarantee or warrantee of that product or service. DESE makes no statements concerning the quality of any product or service nor recommends any individual product or service.

Any lists of products or services are provided for the sole purpose of assisting schools in implementing the provisions of the Missouri Green Cleaning Guidelines and Specifications for Schools Act.

DESE's responsibilities are limited to the specific duties specified in the Act. No further duty is owed any other party.

# ***Missouri Revised Statutes***

## **Chapter 161 State Department of Elementary and Secondary Education Section 161.365**

August 28, 2008

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### **Department to establish guidelines and specifications for program--districts to be provided with information--rulemaking authority.**

161.365. 1. The department of elementary and secondary education shall, in consultation with the department of health and senior services, and a panel of interested stakeholders, including cleaning product industry representatives, nongovernmental organizations, and others, establish and amend on an annual basis guidelines and specifications for green cleaning programs, including environmentally-sensitive cleaning and maintenance products, paper product purchases, and equipment purchases for cleaning programs. The department shall provide multiple avenues by which cleaning products may be determined to be environmentally sensitive under the guidelines. Guidelines and specifications shall be established after a review and evaluation of existing research and shall be completed no later than February 24, 2009. Guidelines and specifications may include implementation practices, including inspection. The completed guidelines and specifications shall be posted on the department of elementary and secondary education's official web site.

2. Upon completion of the guidelines and specifications required under subsection 1 of this section, the department of elementary and secondary education shall provide each district with a printed copy of the guidelines and specifications. Each district shall then immediately disseminate the guidelines and specifications to every school in the district. In the event the guidelines and specifications are updated by the department of elementary and secondary education, the department shall provide the updates to each district for immediate dissemination to each school. Additionally, the department of elementary and secondary education shall post all updated materials on the department's official web site.

3. The department of elementary and secondary education may promulgate rules and regulations necessary to carry out the provisions of this section. Any rule or portion of a rule, as that term is defined in section 536.010, RSMo, that is created under the authority delegated in this section shall become effective only if it complies with and is subject to all of the provisions of chapter 536, RSMo, and, if applicable, section 536.028, RSMo. This section and chapter 536, RSMo, are nonseverable and if any of the powers vested with the general assembly pursuant to chapter 536, RSMo, to review, to delay the effective date, or

to disapprove and annul a rule are subsequently held unconstitutional, then the grant of rulemaking authority and any rule proposed or adopted after August 28, 2008, shall be invalid and void.

(L. 2008 S.B. 1181, et al.)

## **Appendix B**

### **Web sites**

Illinois Green Cleaning Schools Act  
([http://www.standingupforillinois.org/green/school\\_cleaning.php](http://www.standingupforillinois.org/green/school_cleaning.php))

Green Clean Schools (<http://healthyschoolscampaign.org/programs/gcs/>)

Healthy Schools Network (<http://www.healthyschools.org/>)

Illinois Department of Health—Healthy Schools Healthy Living  
(<http://app.idph.state.il.us/envhealth/healthyschools/default.asp>)

Green Seal (<http://greenseal.org/>)

EcoLogo Program (<http://www.ecologo.org/en/>)

International Organization for Standardization (<http://www.iso.org/iso/home.htm>)

EPA Design for the Environment: Formulator Program  
(<http://www.epa.gov/dfe/pubs/projects/formulat/index.htm>)

EPA Procurement Guidelines for Commercial/Industrial Sanitary Tissue  
(<http://www.epa.gov/osw/conserve/tools/cpg/products/tissue.htm>)

U.S. EPA Schools Chemical Cleanout Campaign (SC3)  
(<http://www.epa.gov/epawaste/partnerships/sc3/index.htm>)

EPA Healthy Schools Environment Resources (<http://cfpub.epa.gov/schools/index.cfm>)

EPA Indoor Air Quality Tools for Schools Action Kit  
(<http://www.epa.gov/iaq/schools/actionkit.html>)

National Institute of Building Services-Indoor Environmental Quality  
(<http://ieq.nibs.org/om/index.php>)

Cleaning for Healthy Schools Toolkit (<http://www.cleaningforhealthyschools.org/>)

Missouri Center for Safe Schools (<http://education.umkc.edu/safe-school/>)

National Safety Council-Children's Hand Washing (<http://www.scrubclub.org/home.aspx>)

Washington State Department of Health-School Indoor Air Quality: Best Management Practices Manual (<http://www.doh.wa.gov/ehp/ts/IAQ/schooliaqbmp.pdf>)

State of California-Proposition 65 (<http://www.oehha.ca.gov/prop65.html>)